and *O. pycnocarpa* and their hybrids, both of which species were formerly included in *O. biennis*. Many valuable confirmatory details need not be cited, but the following may be mentioned. The embryo sac is 4-nucleate, lacking antipodals and one of the polar nuclei, and this condition was found not only in *Oenothera*, but also in *Ludwigia*, *Gaura*, *Godetia*, and *Circaea*. The author regards it as a diagnostic character of Onagraceae, and therefore would exclude *Trapa*, with its normal 8-nucleate sac, from the family. This condition in Onagraceae he thinks may have been produced by mutation, but not by adaptation. The pollen tube enters the synergid and the "mixed plasma" flows out and spreads over the egg. The cytoplasm of the pollen grain was found to contain an immense number of minute starch grains, which migrate through the pollen tube, enter the synergid, and finally disappear. The male nucleus is inclosed in a distinct plasma sheath until it reaches the egg. The synergid and the upper two-thirds of the egg have a distinct cellulose membrane, the lower part of the egg acquiring it after fertilization. Self-sterility of some hybrids is said to be due to the feeble growth of the pollen tube.—J. M. C.

Histology of phloem.—There has been a tendency in recent years to assume that the doctrine of recapitulation is a law as valid and invariable as the laws of physics and chemistry, and to use it as a reliable short cut in the study of the evolution of plants. However, it is to be emphasized that a law is a statement of fact, not a theory or working hypothesis. If the doctrine of recapitulation and similar generalizations are to be accepted as true laws they must be capable of statistical or experimental proof. MacDaniels[15] points out that, although in a considerable number of woody dicotyls which he studied there is no fundamental difference between the type of sieve tube found in seedlings and first annual rings and that found in the mature condition, the remaining forms possess a presumably less primitive type of structure in the earlier than the later stages of ontogeny. Furthermore, he shows that there is no close parallelism in the specialization of sieve tubes, vessels, and floral structures. It has been a common morphological fallacy to assume that because the evolution of a selected structure progresses apparently in a given direction the sums of all structures (organisms) are moving in a similar direction. MacDaniels' comprehensive and painstaking piece of work is a valuable contribution to our knowledge of the histology of phloem.—I. W. Bailey.

Enzyme secretion.—The influence of such inorganic salts as the nitrates, chloride sulphates, and monobasic phosphates of sodium and potassium, and the chlorides and sulphates of calcium and magnesium on the secretion of diastase by *Penicillium camembertii* has been investigated by Robbins.[16]

[15] MacDaniels, L. H., The histology of the phloem in certain woody angiosperms. Am. Jour. Bot. 5:347–378. 1918.

[16] Robbins, W. J., Influence of certain salts and nutrient solutions on the secretion of diastase by *Penicillium camembertii*. Amer. Jour. Bot. 3:234–260. 1916.